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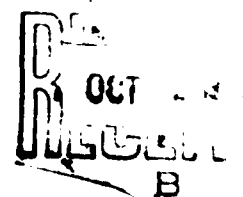
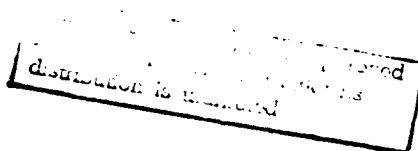
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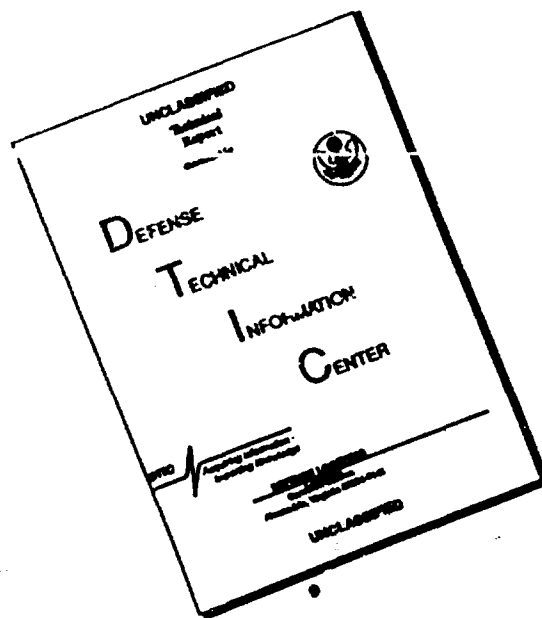
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RESULTS OF SIMULTANEOUS VACCINATION OF SHEEP AGAINST ANTHRAX,
BRAXY AND INFECTIOUS ENTEROTOXAEMIA

/Following is the translation of an article by Yu. B. Safarov and N.M. Ibragimov, Azerbaydzhan Agricultural Institute, published in the Russian-language periodical Veterinariya (Veterinary Science) 42 (10), 1965, pages 39-40. Translation performed by Sp/7 Charles T. Ostertag, Jr./

A number of scientists have demonstrated the effectiveness of preparing and using polyvalent vaccines for the prophylaxis of infectious diseases of farm animals. There are also reports of the feasibility of simultaneously inoculating animals with two vaccines against various diseases. Our goal was to study the influence of anthrax vaccination on the immunobiological indices of animals, inoculated against braxy and enterotoxaemia.

The tests were set up on 18 sheep, one year old, and on 144 white mice weighing 16-20 grams.

For the immunization of animals against anthrax we used the STI vaccine, and against braxy and enterotoxaemia of sheep - with concentrated polyvalent GOA vaccine.

The sheep were injected with 0.25 ml each of the STI vaccine, and the white mice - with 0.01 ml each. The concentrated polyvalent GOA vaccine was administered to the sheep in quantities of 2 ml each for the first inoculation and 3 ml for the second, and the white mice received correspondingly 0.3 and 0.5 ml. The interval between the first and second vaccinations was 14 days. The tests were carried out in six variations.

In the first variation the animals were inoculated with STI vaccine, and 12 days after this - a double inoculation of 2 and 3 ml each of polyvalent GOA-vaccine.

In the second variation - the STI vaccine and the polyvalent GOA vaccine were administered simultaneously, initially 2 ml each, and after 14 days - 3 ml each.

In the third variation - the animals were inoculated with 2 ml each of polyvalent GOA vaccine, and after 14 days - simultaneously with 3 ml of polyvalent GOA vaccine and the STI vaccine.

In the fourth variation - the animals were inoculated with 2 and 3 ml of polyvalent GOA vaccine and after 12 days - the STI vaccine.

In the fifth variation - they received 2 and 3 ml each of polyvalent GOA-vaccine. They were not immunized with the STI vaccine.

In the sixth variation the animals were inoculated only with the STI vaccine.

Non-inoculated sheep and white mice served as the control.

Prior to and after 12, 30, 60, and 90 days after immunization the sheep were studied for clinical indices, changes in the morphological composition of the blood and protein, the degree of accumulation of neutralizing antibodies in the blood serum with the help of the neutralization reaction in respect to Clostridium septicum and Cl. perfringens type C on white mice based on the generally accepted method. For setting up this reaction we used serum in a dosage of 0.6-0.8 ml. In addition, to this in the six variations with the white mice we studied the intensity of immunity by means of their acute infection with a subtitrated lethal dose of separate cultures of Bac. anthracis, Cl. septicum and Cl. perfringens C. The mice were infected two months after inoculation.

It was established that no sharp changes from normal were observed in the clinical indices of the sheep in all the variations of the experiment. After the administration of the vaccine we initially noted an increase in the amount of erythrocytes and leukocytes and a lowering in the content of hemoglobin, and subsequently these indices either remained within normal limits or were somewhat increased. Only in the animals in the fourth variation we noted an increase in the content of leukocytes, erythrocytes and hemoglobin for a period of two months. Thus, if in the beginning of the test the amount of erythrocytes in them was 7.62 million, hemoglobin - 42.6%, and leukocytes - 6 thousand, then after two months they were correspondingly 8.63 million, 50.5% and 10.2 thousand. There were almost no changes in the morphological indices of the blood in the sheep from the control group during the same period.

In the sheep from the first, third and fourth variations we noted a sharp increase in the globulin fraction, particularly the gamma-globulins, a decrease of albumins, and somewhat of an increase in total protein. Thus, in animals from the third variation prior to the beginning of the test there was 56.51% globulins, albumins - 43.49%, total protein - 5.9%, three months after administration of the vaccine - 64.84, 35.16, and 6.64% correspondingly. In the control sheep the changes in the protein fractions were insignificant.

During the investigation of the sheep after each month it was established that the highest neutralizing activity is possessed by the blood serum from animals in the third and fourth variations (the reaction was set up with serum in a dose of 0.6 and 0.8 ml according to the generally accepted method on white mice with a one-, two-, and three-fold lethal dose of cultures of Cl. septicum and Cl. perfringens type C). It was

established that while the blood sera from sheep in the first, second, and fifth variations at the end of the second month do not neutralize a threefold lethal dose of these microbes in a dose of 0.6 ml, and the blood sera from sheep in the third variation in this dose partially protected mice from death (three out of five died), the blood sera from sheep in the fourth variation neutralizes a three-fold lethal dose of these microbes in a dose of 0.6 ml and protects the mice from infection.

Thus, the weakest immunity in respect to the causative agent of braxy and enterotoxaemia of sheep is revealed in sheep from the second variation, which received the STI vaccine simultaneously with the first inoculation of polyvalent GOA vaccine, and the strongest immunity is revealed in sheep from the third and fourth variations, that is, in those which received the STI vaccine simultaneously with the second inoculation of polyvalent GOA vaccine or 12 days later.

In 1964 at the test farm of the Azerbaydzhan Agricultural Institute (Kovlyarskoye), for the practical confirmation of our experiments the sheep from three flocks (1775 heads) received the STI vaccine simultaneously with the second inoculation of concentrated polyvalent GOA vaccine, and the sheep of the remaining flocks were immunized against anthrax, braxy and enterotoxaemia separately. No apparent clinical changes, and also complications or murrain were observed in all of the test sheep. Thus, if the necessity arises for the vaccination of animals against anthrax, braxy and enterotoxaemia in a brief period, it is possible to use the STI vaccine simultaneously with the second inoculation of polyvalent GOA vaccine.